

EVANS¹⁰ has described 4 new species of *Lejeunea* from Florida, 2 of which seem to be endemic to that state. Of this group of liverworts Florida is now known to contain 44 species of the 48 recorded from the United States.

FERNALD¹¹ has described 2 new species of *Rosa* (*R. johannensis* and *R. Williamsii*) from northern Maine and adjacent Canada.

PETCH¹² has described 138 new species of fungi from Ceylon, representing approximately 75 genera. Among them there are 32 new species of *Uredo*.

WIEGAND¹³ has published the result of his studies of *Elymus* in Eastern North America, discussing 7 species, one of which (*E. riparius*) is described as new.—J. M. C.

Phylogeny of Filicales.—In continuation of his studies of Filicales, BOWER¹⁴ has presented the Pterioideae. The observed details of phyletic relationships among the genera are too numerous to recite, but the paper contains a wealth of material for the special student. In a former paper of the series BOWER suggested that the leptosporangiate ferns, exclusive of the Osmundaceae, may be grouped into two phyletically distinct series: the Superficiales, in which the origin of the sorus is constantly from the surface of the leaf; and the Marginales, in which it is as constantly from the margin. All of the Pterioideae belong to the Marginales, and they show analogies with the Superficiales, especially in those forms which have apparently superficial sori. He shows that such sori result from "a slide of the marginal sorus to a superficial position." "The Superficiales are believed to represent ferns in which that slide took place so early in their descent that the two sequences must be held to be phyletically distinct, notwithstanding those analogies."—J. M. C.

Atmometry.—The desirability of having an atmometer so constructed as to indicate the magnitude of the atmospheric evaporation power at any given moment is discussed by JOHNSTON and LIVINGSTON.¹⁵ Attempts to produce such an instrument are described, but so far it has not been possible to overcome certain difficulties in converting evaporation power into pressure. The nearest approach to such an instrument which has proved successful is a device

¹⁰ EVANS, A. W., Noteworthy *Lejeuneae* from Florida. Amer. Jour. Bot. 5: 131-150. figs. 5. 1918.

¹¹ FERNALD, M. L., *Rosa blanda* and its allies of northern Maine and adjacent Canada. Rhodora 20:90-96. 1918.

¹² PETCH, T., Additions to Ceylon fungi. Ann. Roy. Bot. Gard. Peradeniya 6:195-256. 1917.

¹³ WIEGAND, K. M., Some species and varieties of *Elymus* in Eastern North America. Rhodora 20:81-90. 1918.

¹⁴ BOWER, F. O., Studies in the phylogeny of the Filicales. VII. The Pterioideae. Ann. Botany 32:1-68. figs. 43. 1918.

¹⁵ JOHNSTON, EARL S., and LIVINGSTON, B. E., Measurement of evaporation rates for short time intervals. Plant World 19:136-140. 1916.

which permits two readings to be made with a very short time period between. An atmometer cup is mounted over a reservoir from which it may be cut off at will by means of a glass cock. It is also connected with a finely graduated burette from which the water will be drawn when the reservoir cock is closed. A reading can be made in a very short time at any desired intervals, and the average evaporating power for the period of observation can be calculated. Comparison of different environments is easily made.—CHARLES A. SHULL.

Embryo sac of *Oenothera*.—ISHIKAWA¹⁶ has published a very full account of the behavior of the gametophytes and the fertilization phenomena in *Oenothera nutans* and *O. pycnocarpa*, as well as in their hybrids. These two species were formerly included in *O. biennis*. The embryo sac arises from either the chalazal or micropylar megaspore, and often both develop simultaneously into complete embryo sacs. The sac is tetranucleate, lacking the antipodals and one of the polar nuclei. In fertilization one of the male nuclei fuses with the remaining polar nucleus, resulting in diploid endosperm. Self-sterility of some of the hybrids is due to feeble growth of the pollen tube. Tetranucleate embryo sacs occur also in *Ludwigia*, *Gaura*, *Godetia*, and *Circaea*.—J. M. C.

Iron in nutrient solutions.—CORSON and BAKKE,¹⁷ working upon wheat and Canada field peas, have studied the relative merits of ferrous and ferric phosphates in nutrient solution. They find that iron in the nutrient solution is more important than generally considered; that ferric phosphate is more effective than ferrous phosphate, especially for wheat; and that ferric phosphate in the concentration suggested by SHIVE (0.0044 grams per liter) gives maximum dry weight.—WM. CROCKER.

Polyembryony.—HARVEY,¹⁸ in connection with recording a case of polyembryony in *Quercus alba*, has given a summary of the recorded cases of polyembryony in angiosperms. The list includes 36 cases, scattered through "15 of the 49 alliances." In the case of *Quercus* reported two vigorous embryos occurred in the acorn, and it is of special interest because this is said to be the first reported case of polyembryony "in the first 13 alliances of the Archichlamydeae."—J. M. C.

¹⁶ ISHIKAWA, M., Studies on the embryo sac and fertilization in *Oenothera*. Ann. Botany 32:277-317. pl. 7. figs. 14. 1918.

¹⁷ CORSON, G. E., and BAKKE, A. L., The use of iron in nutrient solution for plants. Proc. Iowa Acad. Sci. 24:477-482. 1917.

¹⁸ HARVEY, LEROY H., Polyembryony in *Quercus alba*. Mich. Acad. Sci. Rep. 1917. 329-331.